

(12)特許協力条約に基づいて公開された国際出願

(19) 世界知的所有権機関  
国際事務局(43) 国際公開日  
2005年5月6日 (06.05.2005)

PCT

(10) 国際公開番号  
WO 2005/041209 A1(51) 国際特許分類: G21C 17/00, G21D 3/00,  
F01D 17/24, F01K 23/10, H02P 9/04

(21) 国際出願番号: PCT/JP2004/016280

(22) 国際出願日: 2004年10月27日 (27.10.2004)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:  
特願 2003-369619

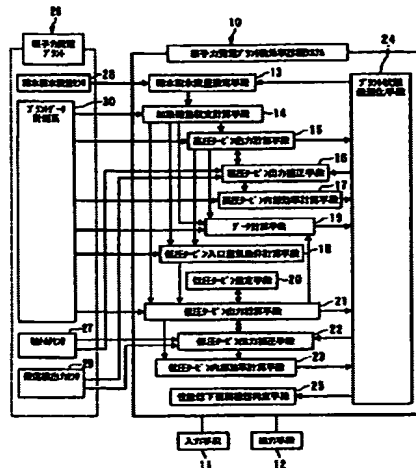
2003年10月29日 (29.10.2003) JP

(71) 出願人 (米国を除く全ての指定国について): 東京電力  
株式会社 (THE TOKYO ELECTRIC POWER COM-  
PANY, INCORPORATED) [JP/JP]; 〒1008560 東京都  
千代田区内幸町1丁目1番3号 Tokyo (JP).

(72) 発明者: および

(75) 発明者/出願人 (米国についてのみ): 梅沢 修一  
(UMEZAWA, Shuichi). 山本 拓未 (YAMAMOTO,  
Takumi).(74) 代理人: 波多野 久, 外 (HATANO, Hisashi et al.); 〒  
1050003 東京都港区西新橋一丁目17番16号 宮田  
ビル2階 東京国際特許事務所 Tokyo (JP).

[続葉有]

(54) Title: THERMAL EFFICIENCY DIAGNOSING SYSTEM FOR NUCLEAR POWER PLANT, THERMAL EFFICIENCY  
DIAGNOSING PROGRAM FOR NUCLEAR POWER PLANT, AND THERMAL EFFICIENCY DIAGNOSING METHOD FOR  
NUCLEAR POWER PLANT(54) 発明の名称: 原子力発電プラント熱効率診断システム、原子力発電プラント熱効率診断プログラムおよび原子  
力発電プラント熱効率診断方法

- 26... NUCLEAR POWER PLANT  
28... FEEDWATER/CONDENSED WATER FLOW SENSOR  
30... PLANT DATA MEASURING SYSTEM  
27... SHAFT TORQUE SENSOR  
29... GENERATOR OUTPUT SENSOR  
10... THERMAL EFFICIENCY DIAGNOSING SYSTEM FOR NUCLEAR POWER PLANT  
13... FEEDWATER/CONDENSED WATER FLOW SETTING MEANS  
14... HEATER HEAT BALANCE CALCULATION MEANS  
16... HIGH-PRESSURE TURBINE OUTPUT CALCULATION MEANS  
17... HIGH-PRESSURE TURBINE OUTPUT CORRECTION MEANS  
18... HIGH-PRESSURE TURBINE INTERNAL EFFICIENCY CALCULATION MEANS  
19... DATA CALCULATION MEANS  
20... LOW-PRESSURE TURBINE INLET STEAM CONDITION SETTING MEANS  
21... LOW-PRESSURE TURBINE SETTING MEANS  
22... LOW-PRESSURE TURBINE OUTPUT CALCULATION MEANS  
23... LOW-PRESSURE TURBINE OUTPUT CORRECTION MEANS  
24... LOW-PRESSURE TURBINE INTERNAL EFFICIENCY CALCULATION MEANS  
25... DEGRADATION ORIGINATING DEVICE SPECIFYING MEANS  
11... INPUT MEANS  
12... OUTPUT MEANS  
24... PLANT STATE OPTIMIZATION MEANS

(57) Abstract: A thermal efficiency diagnosing system (10) for a nuclear power plant, comprising a feedwater/condensed water flow setting means (13) temporarily setting a feedwater flow, a heater heat balance calculation means (14) calculating the heat exchange amounts of feedwater and condensed water in a heater, a high-pressure turbine output calculation means (15) for obtaining the calculated output value of a high-pressure turbine by assuming the degree of dryness of the nuclear power plant at the outlet of the high-pressure turbine, a high-pressure turbine output correction means (16) correcting the calculated output value of the high-pressure turbine by correcting the degree of dryness of the nuclear power plant at the outlet of the high-pressure turbine, a high-pressure turbine internal efficiency calculation means (17) calculating the internal efficiency of the high-pressure turbine, a low-pressure turbine inlet steam condition setting means (18) setting steam conditions at the inlet of a low-pressure turbine, a low-pressure turbine output calculation means (21) for obtaining the calculated output value of the low-pressure turbine, a low-pressure turbine output correction means (22) correcting the calculated output value of the low-pressure turbine, a low-pressure turbine internal efficiency calculation means (23) calculating the internal efficiency of the low-pressure turbine, and a degradation originating device specifying means (25) specifying a component causing the degradation of the nuclear power plant.

[続葉有]